View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by National Changhua University of Education Institutional Repository

2008 CACS International Automatic Control Conference, National Cheng Kung University, Tainan, Taiwan, Nov. 21-23, 2008

Delay-Dependent Approach to Robust Stability for Uncertain Discrete Stochastic Recurrent Neural Networks with Interval Time-Varying Delays

Lu, Chien-Yu; Zheng, Kai-Yuan; Liao, Chin-Wen

Abstract

This paper considers the problem of global robust delay-range-dependent stability for uncertain discrete stochastic recurrent neural networks with interval time-varying delays. The parameter uncertainties are assumed to be time-varying norm-bounded in the state equation. The activation functions are assumed to be globally Lipschitz continuous. Based on an appropriate Lyapunov- Krasovskii functional, global robust delay-dependent stability criterion which is dependent on both the lower bound and upper bound of the interval time-varying delays is derived. A sufficient condition for the discrete stochastic recurrent neural networks with interval time-varying delays is presented in terms of the linear matrix inequality (LMI). An example is given to demonstrate the reduced conservatism of the proposed results in this paper.

Key words: Discrete stochastic recurrent neural network;
Interval time-varying delay;Linear matrix inequality;
Uncertainty;Robust stability